THE ROLE OF FEDERAL AND STATE AGENCIES IN RADIATION ACCIDENTS: A BRIEF OVERVIEW*

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THIS paper provides a "road map" through the system by which federal agencies organize and direct their efforts for the planning and response to radiation accidents. The interplay of federal agencies in nuclear power plant and transportation accidents is emphasized, but there can be federal assistance in radiation accidents occurring at different facilities (accelerators, weapons fabrication or transport, educational institutions or hospitals) or under different circumstances (occupational rather than public hazard). Regulations which define federal responsibilities in emergency planning, the interaction of various federal agencies, and federal assistance available on request are discussed. The paper concludes with a discussion of the state's role in radiation accident planning and response.

THE FEDERAL ROLE

The Nuclear Regulatory Commission. Under 42 United States Code, section 211 (1976), the Nuclear Regulatory Commission is authorized to issue licenses to operators of nuclear power plants.[1] Based on this statute, the Commission requires that the licensee work with state and local governments to assure adequate offsite emergency plans and response capabilities for nuclear power plants. The Commission's basic emergency planning regulation for nuclear power plants and other facility licensees is 10 Code of Federal Regulations, part 50, Appendix E,[2] which established minimum requirements for emergency plans. The Nuclear Regulatory Commission's "Regulatory Guide 1.101 "Emergency Planning for Nuclear Power Plants," issued in 1975 and revised in 1977, was the principal

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guidance document for applicants and was incorporated into 10 Code of Federal Regulations, part 50, appendix E in 1980 to yield a clarified and expanded and document.[3,4]

The Department of Transportation. Whereas planning for and response to accidents at nuclear power plants are under the aegis of the Nuclear Regulatory Commission, preparations for possible accidents during the transport of radioactive materials is guided by the Department of Transportation, which regulates the safety aspects of transportation of hazardous materials in civil interstate and foreign commerce on land, on civil aircraft by air, and on other than public vessels in navigable waters. Department of Transportation regulations for radioactive materials apply to shippers (those who offer goods for transport), carriers (those who transport such goods), and warehousemen (those who store goods), among others.

Several entrepreneurs involved in transportation of radioactive materials may have a specific role in emergency planning and response. Here there is an interplay between the Nuclear Regulatory Commission and the Department of Transportation. The commission regulates persons (i.e., the shipper) who transport radioactive materials through its licensing process. The Department of Transportation's regulation, 10 CFR Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Materials Under Certain Conditions," specifically applies to shippers and private carriers.[5] The shipper is specifically responsible for complying with applicable regulations in packaging, labeling, marking, and otherwise preparing radioactive materials for transport.[5] Authority for emergency actions stems from specific regulations, namely, 49 CFR 171.15, 171.16, 174.700, 174.715, 174.750, 175.700(b), 176.710, and 177.861, which require that actions be taken to protect the health and safety of the public in case of accidents or leaking packages or suspected leakage from packages of radioactive material.[5] These regulations also require that carriers take emergency actions in case of a transportation accident.

The Federal Emergency Management Agency. Agencies of federal government have a responsibility, together with the private sector, to plan protection programs for implementation in case of a radiation accident. A clear delineation of the responsibilities of various federal agencies is necessary to guarantee compatibility of plans and to ensure consistent federal guidance to the states, local government, and industry. The overview for the federal role in nuclear emergency response planning is contained in the Interagency Agreement published by the Federal Office of Emergency Preparedness on January 24, 1973.[6] This was updated by the

General Services Administration, Federal Preparedness Agency—now the Federal Emergency Management Agency (FEMA)—in the *Federal Register* of December 10, 1975, and by the Federal Emergency Management Agency on October 22, 1980, again on December 23, 1980, and published in final form as a regulation on March 11, 1982.[7] The present regulation delineates the responsibilities of all federal agencies involved in emergency planning and response.

Interagency coordination and cooperation. The purpose of the above regulation is to coordinate federal assistance to state and local governments in their emergency response planning for radiological accidents at fixed nuclear facilities and for radiological accidents involving the transportation of nuclear materials. The regulation established the Federal Radiological Preparedness Coordinating Committee, supervised by the Federal Emergency Management Agency, which is to assure that each federal agency coordinates through the Committee its responsibilities with state and local governments. The 1982 Federal Emergency Management Agency regulation refers to 10 Regional Assistance Committees, one in each federal region, to assist state and local government officials in development of their radiological emergency response plans and to observe exercises and to evaluate the adequacy of state and local plans. The regulation then defines the responsibilities assigned to each agency. Figure 1 outlines the structure of federal agency cooperation with state and local governments for radiological emergency response planning and preparedness, and indicates the main responsibilities of each federal agency in this task. Simply put, the agency responsibilities are: policy and leadership coordination and instrumentation (Federal Emergency Management Agency), verification and nuclear facility preparedness (Nuclear Regulatory Commission), protective action guidance (Environmental Protection Agency), countermeasures for the food pathway (Health and Human Services, United States Department of Agriculture), thyroid-blocking agents and medical response (Health and Human Services), monitoring and assessment (Department of Energy), meteorological and hydrological instrumentation (Department of Commerce), training for transportation accidents (Department of Transportation), and scenarios for Department of Defense activities and facilities (Department of Defense). The significant responsibilities of federal agencies and committees are shown in Figure 1.

Practical response to radiation emergencies by federal agencies, coordinated by the Department of Energy, is described in the Interagency Radiological Assistance Plan (referred to as the Federal Radiological Moni-

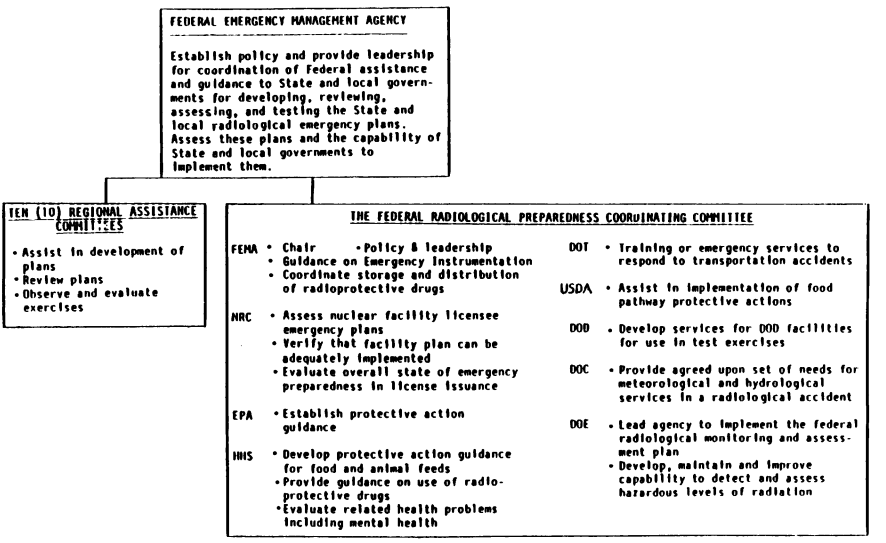
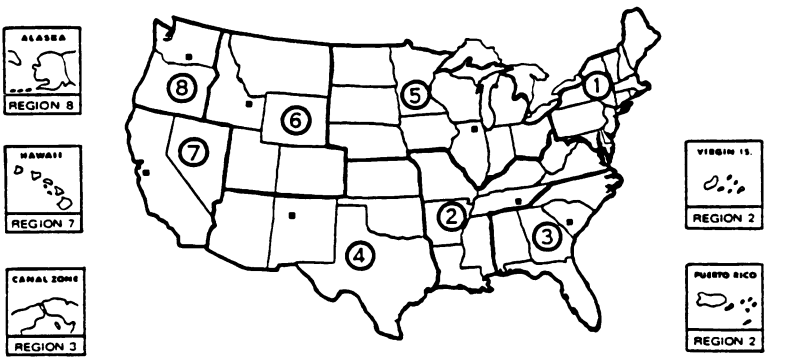


Fig. 1. Significant responsibilities of federal agencies and committees in providing emergency planning guidance

toring Plan in the Federal Emergency Management Plan). This plan, first developed in 1961, provides assistance to state and local governments by federal agencies in peacetime radiological accidents involving the release of radiation. Under this plan, most recently revised in April 1975, Interagency Radiological Assistance Plan teams assist local authorities in measuring air samples, soil, and vegetation.[8] Helicopters and mobile equipment are used for air, vegetation, and soil sampling and analysis.

Federal assistance in a radiation accident. The Department of Energy maintains a national coordinating office and regional coordinating offices for coordinating implementation of the Interagency Radiological Assistance Plan. These are shown in Figure 2. Important telephone numbers for the Regional Coordinating Offices are shown in the figure. The Department of Energy, under its departmental radiological assistance plan, responds to nuclear weapons accidents together with the Department of Defense.

The Nuclear Regulatory Commission cooperates with licensees, state and local governments, and other federal agencies to assure that a proper response is taken to protect the public health and safety, the environment, and property from the consequences of incidents that occur at Nuclear Regulatory Commission-licensed activities. It does this through its Incident Response Program. A communications center located in Bethesda,



Regional Coordinating Office	Post Office Address	Telephone
1 Brookhaven Area Office	Upton, L.I., New York 11973	(516) 345-2200
2 Oak Ridge Operations Office	P.O. Box E, Oak Ridge, Tennessee 37830	(615) 576-1005 or (615) 525-7885
3 Savannah River Operations Office	P.O. Box A, Aiken, S.C. 29801	(803) 725-3333
4 Albuquerque Operations Office	P.O. Box 5400, Albuquerque, N. M. 87115	(505) 264-4667
5 Chicago Operations Office	9800 S. Cass Ave., Argonne, Illinois 60439	(312) 972-4800 Off Duty Hrs. (312) 972-5731
6 Idaho Operations Office	P.O. Box 2108, Idaho Falls, Idaho 83401	(208) 526-1515
7 San Francisco Operations Office	1333 Broadway, Oakland, California 94612	(415) 273-4237
8 Richland Operations Office	P.O. Box 550, Richland, Washington 99352	(509) 942-7381

Fig. 2. Department of Energy Regional Coordinating Offices for radiological assistance and geographical areas of responsibility

Maryland, called the Nuclear Regulatory Commission Operations Center, is designed to receive information about accidents, to conduct a preliminary evaluation, and to notify the Commission Executive Director for Operations. The Center has direct communications with each licensed facility as well as Nuclear Regulatory Commision regional offices. Other federal agencies, notably the Environmental Protection Agency and the Department of Health and Human Services through its Food and Drug Administration, have agency plans and resources specifically for response to radiological accidents.

The Defense Civil Preparedness Agency, now part of the Federal Emergency Management Agency, was originally directed to aid in the establishment of response capabilities of local communities to nuclear attack. Its responsibilities are still largely related to the fallout aspects of a radiological emergency. It has purchased and distributed to states about 500,000 survey meters and several million dosimeters designed to measure gamma radiation from nuclear fallout in case of a nuclear attack. These instruments have potential application in a peacetime radiation emergency

but, at best, can be fully utilized only in one involving high radiation levels. These instruments are routinely maintained and recalibrated by the Agency, which also maintains communications with 900 state and local emergency facilities through teletype, voice, land line, and a radio backup communications system.[9] The federal government has very little direct responsibility for responding to transportation accidents unless they involve military shipments. Neither the Nuclear Regulatory Commission nor the Department of Transportation have any direct role for response in a transportation accident, but they are responsible for investigation and inspection in addition to their regulatory roles. The National Transportation Safety Board also has an investigative role. The primary federal response role for mitigation and control of transportation accidents is provided through the Interagency Radiological Assistance Plan, discussed above.

The Department of Transportation requires a description of the material shipped on the shipping papers accompanying a shipment of radioactive materials. This may provide basic information to evaluate the potential hazard in case of a transportation accident. In a transportation accident, if the state or local radiological authority is not known and if technical advice or assistance is needed for a radiological or other hazardous materials accident, it can be obtained by contacting the Chemical Transportation Emergency Center at (800) 424-9300. For emergencies involving radioactive materials, this center will refer the problem to state or local authorities (if known) or to the appropriate Department of Energy Radiological Assistance Coordinating Offices (Figure 2). Department of Energy radiological experts will determine the nature of the problem and take necessary steps to provide advice, arrange for states or local assistance, or dispatch a team of radiological experts to assist in the emergency.

The State Role

Historically and constitutionally, state and local governments are responsible for public health and safety within their boundaries. They are assisted by the federal government in certain events with national priority, such as epidemics, and in matters that extend across state lines. Since local governments are legally creatures of the state, the state bears ultimate responsibility for public health and safety. However, in the event of an accident, local police, fire, health, and other authorities are responsible for immediate action to protect the public. Statewide civil defense or

emergency preparedness is responsible to the governor by law and sometimes function as part of the state's response network to a radiation accident.

Planning for radiological emergencies is derived from state and local authority and responsibility for protecting the health, safety, and welfare of its citizens and not from federal law. Federal law does not explicitly require that states or local governments have peacetime nuclear emergency plans, nor do they explicitly require states to test these plans. However, nuclear power plants and certain other facilities are explicitly required to submit emergency plans together with the emergency response plans of state and local governments to the Nuclear Regulatory Commission. The Commission and the Federal Emergency Management Agency review the adequacy of these plans. The Commission evaluates onsite and offsite emergency preparedness so that there is a reasonable assurance that adequate protective measures can and will be taken in a radiological emergency. The Commission bases its findings on a Federal Emergency Management Agency determination as to whether state and local emergency plans are adequate and capable of being implemented and on the Commission's own assessment of whether the applicant's emergency plans are adequate and capable of being implemented. The Federal Emergency Management Agency's findings, in turn, are based on a review of the state's plan by Regional Advisory Committees made up of representatives of federal agencies involved in emergency planning. Hence, while state and local emergency planning is not explicitly required by federal law, adequate state and local emergency plans are necessary for issuance of operating licenses for nuclear power plants.

As of February 1983, approximately 350 response plans, including site-specific appraisals of state plans, had been received by the Federal Emergency Management Agency for review. About 265 plans which impact on nuclear power plant sites have been upgraded and submitted for formal approval. The Nuclear Regulatory Commission has concurred in 53 of these plans covering 13 sites.[10] Two issues dominate state reactions to the planning criteria. These are the requirement for notification of 100% of the public inside a five-mile radius of a nuclear power plant within 15 minutes and the requirement for a nearsite Emergency Operations Facility about one mile from the nuclear power plant. Another problem relates to the jurisdictions of several local governments.

In transportation accidents, Department of Transportation regulations

also do not require state and local emergency planning, but expect that state and local police and emergency crews will be responsible for handling radiation incidents, at least in the initial phases of the incident. The Department of Transportation encourages state and local emergency planning and provides information and advice in emergencies. The primary responsibility for emergency action, according to department regulations, is charged to the carrier.

Most state and local agencies cannot devote adequate financial resources to the development of radiological emergency plans. Because federal assistance has not always materialized, several states have moved to fund plans and preparedness programs by legislative enactment. State agencies—impeded by a lack of funds, qualified personnel, and modern equipment—not surprisingly have developed a range of plans. Some of these plans are rather comprehensive; others include emergency teams staffed by part-time employees. A possible way to overcome deficiencies is to plan on a regional level because combined resources can better support sophisticated radiological, meteorological, and computer instrumentation. A key factor in the difficulties inherent in development of state emergency plans is the lack of federal or state regulatory authority explicitly requiring such plans. The regional approach might facilitate this type of regulation.

SUMMARY

This paper defines the regulatory responsibilities of various federal agencies and the states in planning and responding to radiation accidents, and the coordination and cooperation which should exist among these groups. Emphasis is placed on their roles in nuclear power plant and transportation accidents. Practical information is given for contacting federal agencies for assistance. Lastly, the voluntary nature of state planning for nuclear power plant accidents and the funding problems caused by lack of explicit direction requiring such plans is identified as a factor leading to inherent difficulties in the planning process.

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